# Exhibit E

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA

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| B.P.J. by her next friend and mother, HEATHER JACKSON,<br>*Plaintiff*,<br>v.<br><br>WEST VIRGINIA STATE BOARD OF EDUCATION, et al.,<br><br>*Defendants*,<br><br>and<br><br>LAINEY ARMISTEAD,<br><br>*Defendant-Intervenor*. | Civil Action No. 2:21-cv-00316<br><br>Hon. Joseph R. Goodwin |

**EXPERT REBUTTAL REPORT AND DECLARATION OF DEANNA ADKINS, M.D.**

I, Deanna Adkins, M.D., hereby declare as follows:

1. I have been retained by counsel for Plaintiff as an expert in connection with the above-captioned litigation.

2. I have actual knowledge of the matters stated in this rebuttal report and declaration ("Adkins Rebuttal") and have collected and cite to relevant literature concerning the issues that arise in this litigation in the body of the report. I refer herein to my initial expert report in this matter as "Adkins Report."

3. My credentials are set forth in my initial report executed on January 21, 2022.

4. I reviewed the reports of Dr. Stephen Levine and Dr. James M. Cantor (referred to herein as the "Levine Report" and "Cantor Report" respectively). I respond in this report to some of the central points in those disclosures. I do not specifically address each study or article cited

but instead explain the overall problems with some of the conclusions that Dr. Levine and Dr. Cantor draw and provide data showing why such conclusions are in error. I reserve the right to supplement my opinions if necessary as the case proceeds.

5. I have knowledge of the matters stated in this report and have collected and cite to relevant literature concerning the issues that arise in this litigation in the body of this declaration.

6. In preparing this report, I reviewed the text of House Bill 3293 ("H.B. 3293") at issue in this matter. I also relied on my scientific education and training, my research experience, and my knowledge of the scientific literature in the pertinent fields. The materials I have relied upon in preparing this declaration and expert report are the same types of materials that experts in my field of study regularly rely upon when forming opinions on these subjects. I may wish to supplement these opinions or the bases for them as a result of new scientific research or publications or in response to statements and issues that may arise in my area of expertise.

**SEX ASSIGNMENT AND BIOLOGICAL SEX CHARACTERISTICS**

7. Dr. Levine does not appear to have any experience with the process of assigning sex to newborns at birth. Despite that lack of experience, he disputes the scientific consensus described in my initial report that the term "biological sex" is imprecise and should be avoided, as the Endocrine Society has advised.[1] Adkins Report ¶ 41; Levine Report ¶¶ 19-20. Dr. Levine

[1] Hembree, Wiley C., et al., Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline, J Clin Endocrinol Metab, Vol. 102, Issue 11, 1 November 2017, 3869–3903.; Berenbaum S., et al., Effects on gender identity of prenatal androgens and genital appearance: Evidence from girls with congenital adrenal hyperplasia. J Clin Endocrinol Metab 2003; 88(3): 1102-6; Dittmann R, et al., Congenital adrenal hyperplasia. I: Gender-related behavior and attitudes in female patients and sisters. Psychoneuroendocrinology 1990; 15(5-6): 401-20; Cohen-Kettenis P. Gender change in 46,XY persons with 5alpha-reductase-2 deficiency and 17beta-hydroxysteroid dehydrogenase-3 deficiency. Arch Sex Behav 2005; 34(4): 399-410; Reiner W, Gearhart J. Discordant sexual identity in some genetic males with cloacal exstrophy assigned to female sex at birth. N Engl J Med 2004; 350(4): 333-41.

instead asserts that sex is "determined at conception." Levine Report ¶ 20. His only reference for that claim does not support it, but rather is a one-page, undated handout by the National Institutes of Health ("NIH") Office of Research on Women's Health on the topic of sex and gender influences on health. *Id.*[2] Dr. Levine's repeated assertions that sex is "binary" (*e.g.*, Levine Report ¶ 24) ignore the extensive explanation in my initial report about the many differences of sex development that occur naturally in the population, affecting approximately one out of every 300 births. Adkins Report ¶¶ 47-49. The NIH recognizes "gender minorities" including transgender individuals. Indeed, the NIH has a whole section devoted to research to improve care for these populations as well as to ensure adequate inclusion of these populations in all research. (*See* NIH policy regarding Sexual and Gender Minorities, https://dpcpsi.nih.gov/sgmro.) A paper from Bhargava that Dr. Levine relies on in the Levine Report also goes into great detail about human reproductive development and how many other genes, hormones, and other processes that occur well after conception are necessary for typical male or female reproductive tracts to develop. The paper further supports the conclusion that there is wide variation in presentation of human reproductive organs depending on whether all of these steps occur appropriately. There are scientifically validated tools including the Prader Scale that are used to describe variability in external genitalia of humans at birth. These tools are widely used in endocrinology and urology.

8. In addition, Dr. Levine offers selective references to an NIH requirement to include "sex as a biological variable" in research, Levine Report ¶ 21, and an Endocrine Society statement authored by Bhargava, et al. with observations about applying that requirement. Levine Report ¶¶ 21-22. None of these sources contradict my opinions in this case.

[2] *See id.* (citing National Institutes of Health, Office of Research on Women's Health. *How Sex and Gender Influence Health and Disease*, https://orwh.od.nih.gov/sites/orwh/files/docs/SexGenderInfographic_11x17_508.pdf).

9. Dr. Levine also invokes human brain development and "differences between genders in function studies" to support his claim that sex is a binary concept established at birth, Levine Report ¶ 23, but ignores the literature showing that transgender women share some gender-differentiated brain structures with cisgender women, and that transgender men share some gender-differentiated brain structures with cisgender men. (*See* Bhargava et al. 2021.) Additionally, there are several studies that show an increase in the likelihood of being transgender with certain variations in the androgen receptor, as well as in utero exposure to certain hormones and hormone related medications.

10. Dr. Levine seeks to refute the biological underpinnings for transgender status by reference to supposed changes in incidence of gender dysphoria, changes in the ratio of transgender boys versus girls, alleged "clustering" among friend groups, claims of desistance, and nonscientific labels some individuals use such as gender fluidity. Levine Report ¶¶ 97-102. He also invokes these examples to contest the explanation in my initial report that gender identity is not subject to voluntary change. Adkins Report ¶ 18; *see also* Cantor Report ¶ 13. But the increase in the number of people known to be transgender in no way suggests that people's gender identity can be changed. We are able to see and treat more transgender people now because of increased societal acceptance and improved medical treatments over the past decade. And that some people describe their gender as fluid does not mean that they can change their gender identity. Gender identity—whether cisgender, transgender, or something that does not fall into a binary male or female category—cannot be changed voluntarily or by external factors and is therefore fixed. That some people have changing understandings of their gender identity or express it differently at different times in no way changes that.

11. It is also not the case that there are high numbers of transgender people who "desist" in their transgender identity once they reach puberty. Adolescents with persistent gender dysphoria after reaching Tanner Stage 2 almost always persist in their gender identity in the long-term, whether or not they were provided gender-affirming care.[3] No medical treatment is provided to transgender youth until they have reached Tanner Stage 2. But for pre-pubertal children who may explore transgender identity and later realize that they are not transgender, that does not mean their gender identity is not "fixed" but rather that their understanding of it evolved.

12. Dr. Levine and Dr. Cantor misconstrue my statements in my opening report that differences of sex development help us understand the importance of one's gender identity. Adkins Report ¶¶ 42-47. As I explained, surgical interventions undertaken on children with differences of sex development to supposedly normalize their genital structures, without adequate information about the child's gender identity, have sometimes had disastrous results because gender identity cannot be involuntarily altered. Adkins Report ¶ 46. Dr. Levine asserts that it is "an error to conflate the two distinct concepts." Levine Report ¶¶ 105-107; *see also* Cantor Report ¶¶ 25-26. But my testimony is not that having a difference of sex development and being transgender are the same, but that the similarities in these conditions help demonstrate that gender identity is deeply rooted for people who are transgender or intersex, just as for cisgender people. Dr. Levine suggests that if you identify with a gender other than those that are represented by your chromosomes that you are transgender. Levine Report ¶¶ 109-111. Under that inaccurate premise, all women with complete androgen insensitivity, who have XY chromosomes and cannot sense

[3] Turban JL, DeVries ALC, Zucker K. Gender Incongruence & Gender Dysphoria. In Martin A, Bloch MH, Volkmar FR (Editors): *Lewis's Child and Adolescent Psychiatry: A Comprehensive Textbook*, Fifth Edition. Philadelphia: Wolters Kluwer 2018.

testosterone at all, would also be categorized as transgender. Dr. Levine's theory is erroneous and does not represent my testimony, or the relevant science, on the matter.

13. Although in medicine we endeavor through research and scholarship to learn the causes of various conditions, illness, and diseases, we do not do so to the exclusion of providing decades-long documented safe and efficacious treatment to the patient immediately in front of us. Such is the case with gender-affirming care and patients with gender dysphoria. It is unnecessary for us to know the exact cause of a medical condition before we can provide treatment to alleviate distress and suffering. There are many other conditions in medicine that do not have a known genetic cause, and yet we still provide medical treatments that have been shown for decades to be helpful in treatment as we continue to study and learn more about their precise causes or etiologies These conditions include autism as well as the multitude of different medical issues that affect people with Down syndrome. For example, I would not hesitate to treat someone with Down syndrome who has hyper- or hypo-thyroidism, which is common in this patient population, simply because I did not know the exact explanation or source for the hyper or hypo-thyroidism. In the medical profession, there are well-documented research and clear treatments for autism and Down syndrome, and I do not need to know the exact reason behind the condition before I would use those treatments to save the lives of my patients.

**TREATMENT PROTOCOLS FOR GENDER DYSPHORIA**

14. Dr. Levine offers a variety of opinions about treatment models for persons who are transgender, Levine Report ¶¶ 34-54, with an emphasis on treatment for prepubertal children. It is worth clarifying that opinions about this population are irrelevant to this case based on my understanding of H.B. 3293, which does not apply to elementary schools, and therefore generally does not affect prepubertal children. Additionally, while the vast majority of Dr. Levine's opinions

appear focused on the appropriate behavioral and medical care for minors with gender dysphoria, H.B. 3293 (which is about sports participation) does not have any effect on those decisions, which are reserved to parents, their children, and their team of medical and mental health care providers.

15. Dr. Levine and Dr. Cantor repeatedly express concerns about the purported lack of mental health evaluation before medical interventions are determined to be medically indicated for adolescents (*e.g.*, Levine Report ¶¶ 73, 83; Cantor Report ¶¶ 14, 19), but this misunderstands the standards of care and how practitioners administer this care. Both the Endocrine Society Clinical Practice Guideline (the "Endocrine Society Guideline") and the World Professional Association of Transgender Health Standards of Care (the "WPATH SOC") require mental health assessments and informed consent processes before any medical treatment is initiated. In my experience treating over 600 youth with gender dysphoria during my tenure at the Duke Center for Child and Adolescent Gender Care (commonly referred to as the Duke Gender Clinic), each patient undergoes a psychological assessment and, if medical interventions are deemed medically appropriate, an extensive informed consent process before such interventions are provided. Any and all decisions about medical care involve not just the adolescent, but also their legal guardians, ensuring that informed consent is provided both by the patient and adults responsible for their care. Additionally, Dr. Cantor's suggestion that gender dysphoric children should be treated *exclusively* with counseling as opposed to any gender affirming medical care underscores his lack of clinical experience in providing any treatment whatsoever to this population. Cantor Report ¶ 17. Cantor's assertion that my opinion about possible outcomes of untreated gender dysphoria misrepresents Spack et al.'s views or conclusions from the 2012 article are also unfounded. *Id*. Dr. Cantor cherry-picked various sentences from the Spack article and strung them together to fit his hypothesis, even going so far as to ignore the clear statement from the article that "Our

observations reflect the Dutch finding that psychological functioning improves with medical intervention and suggests that the patients' psychiatric symptoms might be secondary to a medical incongruence between mind and body, not primarily psychiatric." (Spack, *et al.,* 2012, at 422-23). Finally, Dr. Levine incorrectly and without evidence asserts that the role of psychotherapy in the treatment of gender dysphoria was "downgraded" in the WPATH SOC Version 7. Levine Report ¶¶ 70, 73. Dr. Levine's apparent concern is that if patients are not "required" to undergo psychotherapy for an arbitrary amount of time even when it is clear that medical treatment is indicated, advocates of conversion therapy like himself will be unable to "enable[e] a patient to return to or achieve comfort with the gender identity aligned with his or her biology"—in other words, to not be transgender. The medical community has learned a great deal from the harms inflicted on transgender patients by delaying medical intervention because of the faulty assumption that being transgender was an inherent pathology. Levine Report ¶ 5.

16. Contrary to Dr. Levine's suggestions, providers who treat patients do not encourage any patient to initiate gender-affirming care, nor do they rush patients into medical treatment. *See, e.g.*, Levine ¶¶ 123, 126. Nor does gender-affirming care consist of treatment "on-demand" as Dr. Cantor repeatedly suggests. *See, e.g.*, Cantor Report ¶ 45. Consistent with the WPATH SOC and the Endocrine Society Guideline, each patient in my clinic is met first by mental health providers who explore the patient's medical and mental health history and identity. When following the Standards of Care, no provider rushes any patient into any treatment, much less medical treatment, and no treatment is initiated without the mental health evaluations and a thorough informed consent process for patients and their guardians.

17. Dr. Levine and Dr. Cantor express a view that care should be withheld from adolescents so that they can be encouraged to identify with their birth-assigned sex. This view

contravenes the standard of care; encourages "conversion therapy," which has been widely discredited as unethical and profoundly harmful; and is wholly unsupported by any scientific evidence, as both admit. Levine Report ¶ 49 (admitting that "there is no evidence beyond anecdotal reports that psychotherapy can enable a return" to identifying as one's birth-assigned sex); Cantor Report ¶ 42 (admitting "there has not yet been any such study" that supports withholding care). Additionally, being deprived of access to medically necessary care for gender dysphoria can impose serious and potentially irreversible harms. Many physiological changes that happen during endogenous puberty cause severe distress for patients with gender dysphoria and can be difficult, if not impossible, to reverse with subsequent treatment. Based on my clinical experience, patients with severe dysphoria who are able to receive medically indicated treatment as adolescents experience substantial mental health improvements.

**WPATH IS A PROFESSIONAL MEDICAL ORGANIZATION**

18. Dr. Levine critiques WPATH because it is "a voluntary membership organization" and "attendance at its biennial meetings has been open to trans individuals who are not licensed professionals." Levine Report ¶ 67. This critique is misplaced, as an organization can both advocate for patients and pursue rigorous scientific research, which WPATH and many other medical associations do. This is not an isolated or new phenomenon in medicine. The American Diabetes Association, for example, is a professional association that both advocates for patients with diabetes and is a scientific organization that conducts research, hosts meetings with open attendance, and reports on developments in the field. Similarly, rigorously researched papers are presented at the WPATH biennial meetings and well-funded scientific scholarship is reported on to other attendees. I have attended many of these meetings and have heard open, collegial and cordial debate. I have not had the experience suggested by Dr. Levine in the last decade, nor has

he, as he has admittedly not been a member of WPATH for more than two decades. Levine Report ¶ 66.

19. Dr. Levine additionally critiques WPATH and its members, claiming, "some current members of WPATH have little ongoing experience with the mentally ill" and recognizing and treating psychiatric comorbidities. Levine Report ¶ 73. In my clinic, as is recommended by the Endocrine Society Guideline, every patient is treated by a multidisciplinary team that includes a social worker, psychologist, psychiatrist, and endocrinologist. The mental health providers are all well-trained faculty and clinicians at Duke University Medical School with years of experience diagnosing and treating mental health conditions. For patients who have other mental health diagnoses, they are treated by a team of mental health providers before medical treatment for gender dysphoria is initiated. Clinic protocol requires written confirmation from the patient's mental health team that any other underlying mental health conditions are well-managed, and the patient is able to begin treatment.

20. Similarly, Dr. Levine asserts that the 2017 Endocrine Society Guidelines are not "standards of care." Levine Report ¶¶ 85-86. Dr. Levine misinterprets my testimony in that the titles of the clinical care recommendations based in the medical literature published by the Endocrine Society are all titled "clinical care guidelines." These guidelines are meant to be useful to providers in this field, and are recommendations from the Endocrine Society to improve care for transgender individuals.

## SAFETY AND EFFICACY OF TREATMENTS

### *Safety and Efficacy of Puberty-Delaying Treatment*

21. Puberty blockers have been used to treat patients with gender dysphoria since at least 2004 in the United States. We have almost 20 years of data showing the safety and efficacy

of this treatment for patients with gender dysphoria. We have over 30 years of data about the safety of this treatment based on data from treating children with precocious (i.e., early onset) puberty. Even with all of this supporting data, the Duke Gender Clinic still does not treat patients with a "one-size-fits-all approach" that Drs. Levine and Cantor proclaim exists. Not all patients who are experiencing their endogenous puberty when they present for care at our clinic are indicated for treatment with puberty blockers. This avenue of treatment is a case-by-case decision made with the expertise and thoughtful analysis of the entire multidisciplinary team, and with the patient and their family weighing the risks and benefits of each treatment path.

22. Though Dr. Levine warns throughout his report about delaying puberty, pubertal suppression in transgender youth does not delay puberty beyond the typical age range. Pubertal development has a very wide age variation among individuals. Puberty in individuals assigned male at birth typically begins anywhere from age nine to age 14, and sometimes does not complete until a person's early twenties. For those individuals assigned female at birth, puberty typically occurs sometime within the ages of eight to 17, generally beginning between the ages of eight and 13. Protocols used to treat adolescents with gender dysphoria would tend to put them in the latter third of typical pubertal age ranges but nothing outside of the typical range.[4] Though some peers of a patient on pubertal suppression may undergo pubertal changes earlier than the gender dysphoric patient, many peers will have comparably timed or even later puberty. There is no data to support Dr. Levine's assertion that delaying puberty within these normal age ranges will have negative social and developmental consequences, including Dr. Levine's unsupported claim that

[4] Hembree, W.C., Cohen-Kettenis, P.T., Gooren, L., et al. Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline. *The Journal of Clinical Endocrinology & Metabolism*. 2017; 102(11): 3869-903; Euling, S.Y., Herman-Giddens, M.E., Lee, P.A., et al. Examination of U.S. Puberty-Timing Data from 1940 to 1994 for Secular Trends: Panel Findings. *Pediatrics*. 2008; 121 (Supplemental 3): S172-S191.

transgender youth will experience psychosocial harms from their purportedly delayed puberty. Levine Report ¶ 192. Contrary to the suggestions by Dr. Cantor and Dr. Levine, my clinical experience has shown that adolescents who access needed gender-affirming medical treatment have improved social and romantic relationships and are able to develop positive peer relationships with cisgender and transgender people alike.

23. Dr. Levine claims that patients treated with puberty-delaying medication will experience a range of health consequences. Levine Report ¶¶ 185-94. For example, he says that patients treated with puberty suppressants will be at an elevated risk of lower bone density. Levine Report ¶ 186. During the course of treatment, patients may have reduced bone mineral density, but after two years on hormone therapy, their bone structure and strength generally matches that of cisgender people who went through the same puberty. This has been shown in research[5] and has also been my experience with patients. Additionally, studies have shown no changes in bone mineralization among patients with central precocious puberty treated with pubertal suppression for a period of four years.[6] As with all of the risks of puberty suppression, the risks related to bone mineralization and the state of the evidence are discussed extensively with patients and their parents during the informed consent process.

24. Dr. Levine's claim that brain development occurring during puberty is negatively affected by pubertal suppression is not accurate. Levine Report ¶ 187. Patients with gender dysphoria who are treated with puberty-delaying medication undergo hormonal puberty with all

[5] van der Loos, M.A., Hellinga, I., Vlot, M.C., et al. Development of Hip Bone Geometry During Gender-Affirming Hormone Therapy in Transgender Adolescents Resembles That of the Experienced Gender When Pubertal Suspension Is Started in Early Puberty. *Journal of Bone and Mineral Research*. 2021; 36(5): 931-41. doi: https://doi.org/10.1002/jbmr.4262.

[6] Park, H.K., Lee, H.S., Ko, J.H., et al. The effect of gonadotrophin-releasing hormone agonist treatment over 3 years on bone mineral density and body composition in girls with central precocious puberty. *Clinical Endocrinology*. 2012; 77(5): 743-48.

the same brain and other bodily system development.[7] Dr. Levine's claim is inaccurate for the additional reason that some people never go through hormonal puberty, such as patients with Turner Syndrome, and still have normal brain development with respect to cognition and executive function. His claim also seems to imply that youth with gender dysphoria have their puberty delayed beyond the typical age range, but, as I discussed above, this is not accurate. He also implies that gender dysphoric youth treated with pubertal suppression remain on puberty blockers longer than those treated for precocious puberty. Levine Report ¶ 184. This is also not accurate. The longest period of time that my patients with gender dysphoria are treated with pubertal suppression before the introduction of pubertal hormones is approximately three years. By contrast, many patients with precocious puberty are treated with pubertal suppression for five to seven years.

25. As I explained in my initial report, Adkins Report ¶ 30, puberty-delaying medication simply pauses development at the stage it has reached at the time treatment is initiated. On its own, pubertal-delaying medication has no permanent effects on the maturation of sexual organs. For patients treated with puberty blockers who do not go on to gender-affirming hormones, once they stop taking blockers, puberty—including maturation of sexual organs—resumes. Dr. Levine's concerns about potentially diminished sexual response are also misplaced. Levine Report ¶ 199. For transgender women on estrogen who experience sexual side effects from the treatment, these are effectively managed through dosing as well. None of these side effects are inevitable, unmanageable, or unique to this treatment, and all potential side effects are discussed with patients

[7] Staphorsius, A. S., Kreukels, B. P., Cohen-Kettenis, P. T., et al. Puberty suppression and executive functioning: An fMRI-study in adolescents with gender dysphoria. *Psychoneuroendocrinology*. 2015; 56: 190-99. doi: https://doi.org/10.1016/j.psyneuen.2015.03.007.

during the informed consent process required to initiate treatment. And, in my experience, many patients experience no side effects whatsoever from treatment, and instead experience exactly their intended effect: the diminishment of distress caused by untreated gender dysphoria. There is also data that shows that the majority of transgender individuals see an improvement in their sexual satisfaction after gender-affirming care.

26. Dr. Levine's theories about the unknown impact of puberty blockers on fertility and the supposed "irreversibility" of this treatment are again uninformed. Levine Report ¶¶ 179, 180, 185. In addition to treating precious puberty and gender dysphoria, puberty blockers are used to *preserve* gonadal function and ensure fertility when patients undergo gonadotoxic treatments. For example, puberty blockers have been shown to protect gonadal function and preserve fertility in patients undergoing cancer and rheumatologic treatment.[8] Puberty delaying medication is supported as the standard of care to preserve fertility in oncology patients who may undergo gonadal injuring treatments. When patients are no longer undergoing this treatment, their natal gonads resume their normal function and development. It is precisely for this reason, and for the decades of safe and efficient use of these treatments for children with precocious puberty that puberty blockers are relied upon as the least invasive intervention for medical treatment of gender dysphoria.

27. An additional claim by Dr. Levine that lacks evidentiary bases is that an "irreversible" and "inevitable" outcome of the administration of puberty blockers is the later use

[8] Int J Rheum Dis. 2018 Jun ; 21(6):1287-1292. doi: 10.1111/1756-185X.13318.
Effect of a gonadotropin-releasing hormone analog for ovarian function preservation after intravenous cyclophosphamide therapy in systemic lupus erythematosus patients: a retrospective inception cohort study; nt J Mol Sci 2020 Oct 21;21(20):7792. doi: 10.3390/ijms21207792.
Advances in the Treatment and Prevention of Chemotherapy-Induced Ovarian Toxicity
Hyun-Woong Cho, et al.

of hormone therapy. In contrast to Dr Levine's baselessly imagined world of unethical medical professionals, in actual medical practice in actual medical clinics like mine, no treatment is decided in advance for every single patient, and that is a foremost standard of care. While the majority of my patients who undergo puberty delaying treatment do go on to initiate hormone therapy, some do not. Dr. Levine' imbedded premise is that puberty blockers work as a cause-and-effect mechanism for later use of hormone therapy, but that misses reality entirely, when the cause for any medical treatment is the appropriate management of gender dysphoria with the goal of finding the best treatment possible for each patient, without a predetermined idea of what that will be.

28. Finally, Dr. Levine makes it appear as if the Endocrine Society has significant reservations about puberty-delaying treatment by again misquoting and misrepresenting quoted portions of the 2017 Guidelines. Levine Report ¶¶ 87, 188. To begin with, Dr. Levine asserts that on page 3872, the Guidelines "go no further than 'suggest[ing]' use of puberty blockers." *Id.* ¶ 87. This quote can be found nowhere on page 3872. Instead, in the abstract section labeled "Conclusion" beginning on the first page of the Guidelines (3869) and continuing onto page 3870 is the direct quote "We ***recommend*** treating gender-dysphoric/gender-incongruent adolescents who have entered puberty at Tanner Stage G2/B2 by suppression with gonadotropin-releasing hormone agonists." (emphasis added). Levine then goes on to quote several disconnected sentences from the Guidelines out of context as support for his wholly unsupported hypothesis that there is a "negative impact" on brain development of adolescents treated with puberty delaying medication. Levine Report ¶¶ 187-88. Notably, while Dr. Levine offers no insight about the impact of the anxiety, depression, and overall distress caused by untreated gender dysphoria on adolescent brain development, he maintains that the Guidelines support his unsubstantiated hypothesis by "acknowledging as much." Levine Report ¶ 188. The Guidelines do no such thing; instead they

merely acknowledge the data existing at the current moment, and like any field of medicine, the need for additional study and information. For example, Dr. Levine's first out of context quote ignores the Guidelines' following statements from the same page that "[i]nitial data in GD/gender-incongruent subjects demonstrated *no change* of absolute areal BMD [bone mineral density] during 2 years of GnRH analog therapy but a decrease in BMD z scores." The Guidelines also note, and Levine omits, that "[r]esearchers reported normal BMD z scores at age 35 years in one individual who used GnRH analogs from age 13.7 until age 18.6 years before initiating sex hormone treatment." Additionally, Dr. Levine leaves out the entire first half of the sentence before his reference to "animal data," from page 3883, which in complete form states that "[a] single cross-sectional study demonstrated no compromise of executive function." Regardless of Dr. Levine's mischaracterizations of the purpose or words of the Endocrine Society Guidelines, in the five years since they were published, additional research has been completed by clinicians and researchers in the area, resulting in findings like those recently included in a study in the Best Practice & Research Clinical Endocrinology and Metabolism: "With more than 30 years of experience, we can affirm that GnRHa treatment is safe. The most frequently documented side effects are headaches and hot flashes."[9]

***Safety and Efficacy of Hormone Therapy***

29. Dr. Levine expresses concern that the evidence supporting hormone therapy for treatment of gender dysphoria is graded as low quality. Levine Report ¶¶ 144-47. It is common that standard treatments in medicine generally, and endocrinology specifically, receive reviews that the quality of evidence is "low" or "very low" because of the evidence available at the moment

[9] Leandro Soriano-Guillén, Jesús Argente, Central precocious puberty, functional and tumor-related, Best Practice & Research Clinical Endocrinology & Metabolism, Volume 33, Issue 3, 2019, 101262, ISSN 1521-690X, https://doi.org/10.1016/j.beem.2019.01.003.

a review is conducted and because of the limited and rigid definitions of "evidence" used by the reviewing organizations. For example, the Endocrine Society also has a Clinical Practice Guideline for the Treatment of Pediatric Obesity which was released the same year as the Endocrine Society Guideline for the Treatment of Gender Dysphoric Persons. In the Pediatric Obesity Guideline, the Guideline's strong recommendation for the prevention of obesity is that clinicians prescribe "healthy eating habits"—an obviously time-tested and well-founded recommendation—but this recommendation has a "very low" quality rating of the evidence—just like puberty blockers. Similarly, the Cochrane Database of Systemic Reviews on which Dr. Levine relies has similar levels of evidence for treatments that are standard of care in medicine. For example, in 2021 the Cochrane Database provided a review of "early versus delayed appendectomy for abscess." Despite appendectomies being one of the oldest and most common surgical procedures completed on children in the United States, the Cochrane Review looked at 66 years' worth of study and research and found just two studies with 80 total patients that were acceptable for their review and from that data deemed that the evidence is "of very low quality." (Cochrane Database 2017).

30. Finally, Dr. Levine's assertion that random control trials are necessary in order to establish any worthwhile science on the safe and effective medical treatment for gender dysphoria is unethical. When withholding treatment is more dangerous (likely to result in death or injury) than providing that treatment, clinicians will, with informed consent and appropriate screening mechanisms, use that treatment even if the amount of evidence supporting the treatment is not vast. In the case of gender-affirming hormone therapy, available data supports that these treatments lower suicide attempts and suicidal ideation as much as four-fold. When combined with the fact that the second leading cause of death in all adolescents is suicide, there are ample

reasons to utilize this treatment pathway even if evidence does not meet the stringent levels of the Cochrane Review. Significantly, there are no reported deaths in youth from receiving puberty blockers or hormone therapy. Given that withholding this care increases the likelihood of death, it is unethical to do so in order to perform a randomized control trial ("RCT"). RCTs are only ethically performed between treatments that are at equal in treating a condition. Providing gender-affirming care to transgender young people and not providing it are not equal in treating the condition, as decades of evidence of the death of transgender individuals before gender-affirming hormone treatments were available demonstrate.

31. Dr. Levine warns of risks of infertility related to gender-affirming hormone therapy, Levine Report ¶ 197, but many transgender individuals conceive children both during and after undergoing hormone therapy.[10] Pregnancy among trans men after undergoing testosterone therapy is very common.[11] A recent eight-year study found that four months after stopping testosterone treatment, transgender men had comparable egg yields to non-transgender women.[12] Going directly from pubertal suppression to gender-affirming hormones does affect fertility. For these patients, and any patients treated with estrogen, who are concerned about the impact of estrogen

[10] Light A.D., Obedin-Maliver J., Sevelius J.M., et al. Transgender men who experienced pregnancy after female-to-male gender transitioning. *Obstetrics Gynecology*. 2014; 124(6): 1120-27; Maxwell S., Noyes N., Keefe D., Berkeley A.S., et al. Pregnancy Outcomes After Fertility Preservation in Transgender Men. *Obstetrics Gynecology*. 2017; 129(6):1031-34; Neblett M.F. & Hipp H.S. Fertility Considerations in Transgender Persons. *Endocrinology and Metabolism Clinics*. 2019; 48(2): 391-402.

[11] See, *e.g.*, Moseson, H., Fix, L., Hastings, J., et al. Pregnancy intentions and outcomes among transgender, nonbinary, and gender-expansive people assigned female or intersex at birth in the United States: Results from a national, quantitative survey. *International Journal of Transgender Health*. 2020; 22(1-2): 30-41. doi: .

[12] Leung, A., Sakkas, D., Pang, S., et al. Assisted reproductive technology outcomes in female-to-male transgender patients compared with cisgender patients: a new frontier in reproductive medicine. *Fertility and Sterility*. 2019; 112(5): 858-65.

on fertility, fertility preservation remains a viable option we communicate to patients. More generally, many medical interventions necessary to preserve a person's health and well-being can impact an individual's fertility, but as with virtually every decision in medicine, we carefully weigh the risks and the benefits of treatment and proceed with the treatment after informed consent.

32. Dr. Levine asserts that transgender people "most likely [] require regular administration of hormones for the rest of their lives." Levine Report ¶ 129. Some patients may take hormones for some number of years and then decide to discontinue the treatment if dysphoria is well-managed. For those who do remain on maintenance doses of hormone therapy for their lifetime, the risks of ongoing hormone therapy can be well-managed and are not unlike risks associated with those present for other patients who undergo long-term hormone therapy for different conditions like hypothyroidism, Kleinfelter's Syndrome, Turner Syndrome, or hypopituitism. Generally, in endocrinology, our treatment goals for all patients are to maintain hormone levels at the range of normal human physiology, regardless of a person's chromosomes, reproductive anatomy, or gender identity. When this is done, the body knows no difference in the source of the hormones and functions in normal physiologic fashion, regardless of whether the patient is cisgender or transgender.

33. Ultimately, Dr. Levine's and Dr. Cantor's reports reveal a central opinion is that it is not healthy to be transgender and that government policies and medical practice should undertake efforts to make people not transgender (*i.e.*, use endless psychotherapy to encourage people to live in accordance with their assigned sex at birth rather than their gender identity, deny them medical treatment when it is indicated, ignore their distress unless science and medicine is 100 percent certain there is no possible risk to any intervention). This approach to the management of any condition is counter to medicine and science overall. And attempts to "treat" transgender

people in this manner is historically well-known to be not only entirely ineffective, but to be extremely harmful and is considered unethical by every major medical association.[13] My clinical experience and the peer-reviewed literature overwhelmingly demonstrate that gender-affirming medical care drastically improves the health and well-being of adolescents with gender dysphoria for whom the care is medically indicated.

[13] American Academy of Child & Adolescent Psychiatry. Conversion Therapy. 2018. https://www.aacap.org/AACAP/Policy_Statements/2018/Conversion_Therapy.aspx; American Medical Association. Health care needs of lesbian, gay, bisexual and transgender populations. H-160.991. 2017. https://policysearch.ama-assn.org/policyfinder/detail/H-160.991%20?uri=%2FAMADoc%2FHOD.xml-0-805.xml/

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on this 10th day of March 2022.

Deanna Adkins, M.D.

DUKE UNIVERSITY MEDICAL CENTER

CURRICULUM VITAE

Date Prepared: January 21, 2022

| | |
|---|---|
| Name: | Deanna Adkins, BS, MD |
| | |
| Primary Academic Appointment: | Associate Professor of Pediatrics, Career Track |
| | |
| Primary Academic Department : | Pediatrics |
| | |
| Secondary Appointment : | n/a |
| | |
| Present Academic Rank and Title : | Associate Professor |
| | |
| Date and Rank of First Duke Faculty Appointment: | July 1, 2004 Clinical Associate |
| | |
| Medical Licensure: | Since March 15, 2001 |
| License #: | 200100207 NC |
| Date: | 06/29/2022 expires |
| | |
| Specialty Certification(s) and Dates: | 10/16/2001-2018 General Pediatrics<br>8/18/2003 and current-Pediatric Endocrinology |
| | |
| Date of Birth: | 06/29/1970 |
| | |
| Place: | Albany, GA USA |
| | |
| Citizen of: | USA |
| | |
| Visa Status: | n/a |

| **Education** | **Institution** | **Date (Year)** | **Degree** |
|---|---|---|---|
| | | | |
| High School | Tift County High School | 1988 | Graduated with High Honors |
| | | | |
| College | Georgia Institute of Technology | 1993 | BS Applied Biology/Genetics High Honors |
| | | | |

| Education | Institution | Date (Year) | Degree |
|---|---|---|---|
| Graduate or Professional School | Medical College of Georgia | 1997 | MD |

**Professional Training and Academic Career**

| Institution | Position/Title | Dates |
|---|---|---|
| University of North Carolina Hospitals, Chapel Hill, North Carolina | Pediatrics Resident | 1997-2000 |
| University of North Carolina Hospitals, Chapel Hill, North Carolina | Pediatric Endocrine Fellow | 2000-2004 |
| Duke University Medical Center, Durham, North Carolina | Clinical Associate/Medical Instructor | 2004-2008 |
| Duke University Medical Center, Durham, North Carolina | Assistant Professor Track IV | 2008-2020 |
| Duke University Medical Center, Durham, North Carolina | Fellowship Program Director Pediatric Endocrinology-<br>Associate PD- | 2008-2010 &<br>2014-12/2019<br>2010-2014 |
| Duke University Medical Center, Durham, North Carolina | Director Duke Child and Adolescent Gender Care Clinic | July 2015-present |
| Duke University Medical Center, Durham, North Carolina | Medical Director-Duke Children's Specialty of Raleigh | 3/2017-1/2022 |
| Duke University Medical Center, Durham, North Carolina | Associate Professor Pediatrics | 1/2020-present |
| Duke University Medical Center, Durham, North Carolina | Co-Clinical Lead Duke Sexual and Gender Wellness Program | 10/2021-present |

**Publications**
Refereed Journals

Original Manuscripts:

1. Zeger M, **Adkins D**, Fordham LA, White KE, Schoenau E, Rauch F, Loechner KJ. " Hypophosphatemic rickets in opsismodysplasia," J Pediatr Endocrinol Metab. 2007 Jan;20(1):79-86. PMID: 17315533

2. Worley G, Crissman BG, Cadogan E, Milleson C, **Adkins DW**, Kishnani PS "Down Syndrome Disintegrative Disorder: New-Onset Autistic Regression, Dementia, and Insomnia in Older Children and Adolescents With Down Syndrome". J Child Neurol. 2015 Aug;30(9):1147-52. doi: 10.1177/0883073814554654. Epub 2014 Nov 3.PMID:25367918

3. Tejwani R, Jiang R, Wolf S, **Adkins DW**, Young BJ, Alkazemi M, Wiener JS, Pomann GM, Purves JT, Routh JC**,"** Contemporary Demographic, Treatment, and Geographic Distribution Patterns for Disorders of Sex Development".Clin Pediatr (Phila). 2017 Jul 1:9922817722013. doi: 10.1177/0009922817722013. PMID:28758411

4. Lapinski J1, Covas T2, Perkins JM3, Russell K4, **Adkins D** 5, Coffigny MC6, Hull S7. "Best Practices in Transgender Health: A Clinician's GuidePrim Care". 2018 Dec;45(4):687-703. doi: 10.1016/j.pop.2018.07.007. Epub 2018 Oct 5. PMID: 30401350 DOI: 10.1016/j.pop.2018.07.007

5. Paula Trief, Nicole Foster, Naomi Chaytor, Marisa Hilliard, Julie Kittelsrud, Sarah Jaser, Shideh Majidi, Sarah Corathers, Suzan Bzdick, **Adkins DW**, Ruth Weinstock; "Longitudinal Changes in Depression Symptoms and Glycemia in Adults with Type 1 Diabetes", Diabetes Care; 2019 Jul;42(7):1194-1201. doi: 10.2337/dc18-2441. Epub 2019 May; PMID: 31221694

6. Mann, Courtney M., Kristen Russell, Alexy Hernandez, Nicole Lucas, Erik Savereide, Dane R. Whicker, **Deanna W. Adkins**, Nancy L. Zucker, Raye Dooley, and Bryce B. Reeve. "**Concept elicitation for the development of quality measures in transgender health**." In *Quality of Life Research*, 28:S104–S104. SPRINGER, 2019.

7. M. Hassan Alkazemi, MD, MS, Leigh Nicholl, MS, Ashley W. Johnston, MD, Steven Wolf, MS, Gina-Maria Pomann, PhD, Diane Meglin, MSW**, Deanna Adkins, MD**, Jonathan C. Routh, MD, MPH; Community Perspectives on Difference of Sex Development (DSD) Diagnoses: a Crowdsourced Survey, 2020 Jun;16(3):384.e1-384.e8. doi: 10.1016/j.jpurol.2020.03.023. Epub 2020 Apr 27.PMID: 32409277

8. McGuire H, Frey L, Woodcock LR, Dake E, Carl A, Matthews D, Russell K, **Adkins DA** "Differences in Patient and Parent Informant Reports of Depression and Anxiety Symptoms in a Clinical Sample of Transgender and Gender Diverse Youth" LGBT Health 2021-LGBT Health. Aug-Sep 2021;8(6):404-411. doi: 10.1089/lgbt.2020.0478. Epub 2021 Aug 12

9. Lund A, **Adkins DA**, Simmons C*, "*Simulation-Based Teaching to Improve Perioperative Care of Transgender Patients*".* In press. Clinical Simulation in Nursing

Non Author publications

1. Turner DA, Curran ML, Myers A, Hsu DC, Kesselheim JC, Carraccio CL and the Steering Committee of the Subspecialty Pediatrics Investigator Network (SPIN). Validity of Level of Supervision Scales for Assessing Pediatric Fellows on the Common Pediatric Subspecialty Entrustable Professional Activities. *Acad Med*. 2017 Jul 11. doi: 10.1097/ACM.0000000000001820. PMID:28700462
2. Mink R, Carraccio C, High P, Dammann C, McGann K, Kesselheim J, Herman B. Creating the Subspecialty Pediatrics Investigator Network (SPIN). Creating the Subspecialty Pediatrics Investigator Network Richard Mink, MD, MACM1, Alan Schwartz, PhD2, Carol Carraccio, MD, MA3, Pamela High, MD4, Christiane Dammann, MD5, Kathleen A. McGann, MD6, Jennifer Kesselheim, MD, EdM7, J Peds 2018 Jan;192:3-4.e2. PMID: 29246355 DOI: 10.1016/j.jpeds.2017.09.079
3. Erratum 2018. PMID: 29246355 DOI: 10.1016/j.jpeds.2017.09.079
4. Mink RB[1], Myers AL, Turner DA, Carraccio CL. Competencies, Milestones, and a Level of Supervision Scale for Entrustable Professional Activities for Scholarship. Acad Med. 2018 Jul 10. doi: 10.1097/ACM.0000000000002353. [Epub ahead of print] PMID: 29995669 DOI:10.1097/ACM.0000000000002353 Mink RB, Schwartz A, Herman BE,

Editorials

a. Editorial Charlotte News and Observer-"**NC pediatric specialists say HB2 'flawed' and 'harmful,' call for repeal**"; April 18, 2016; authors: Deanna Adkins, Ali Calikoglu, Nina Jain, Michael Freemark, Nancie MacIver, Robert Benjamin, Beth Sandberg, etc.
b. Editorial Raleigh News and Observer-"**Beverly Gray: Repeal HB2"** May 2016: authors Beverly Gray, Deanna Adkins, Judy Sidenstein, Jonathan Routh, Haywood Brown, Clayton Afonso, William Meyer, Kristen Russell, Caroline Duke, Nancy Zucker, Kevin Weinfurt, Jennifer St. Claire, Angela Annas, Katherine Keitcher

Chapters in Books

1. Endocrinology Chapter writer and editor in **Fetal and Neonatal Physiology for the Advanced Practice Nurse**; Editors: Amy Jnah DNP, NNP-BC, Andrea Nicole Trembath MD, MPH, FAAP. December 21, 2018 ISBN-10 0826157319
2. Chapter in **Dental Clinics of North America Adolescent Oral Health Edition** Understanding and Caring for LGBTQ+ Youth for the Oral Health Care Provider; Authors Joshua Raisin, DDS, Deanna Adkins MD, Scott B. Schwartz, DDS, MPH. 2021
3. Intersex Identity and Gender Assignment; **Encyclopedia of Adolescent Health**; Editor Brian Eichner, MD; Author Deanna Adkins MD 2021-pending

Selected Abstracts:

1. Redding-Lallinger RC, **Adkins DW,** Gray N: The use of diaries in the study of priapism in sickle cell disease. Poster Abstract in Blood November 2003
2. **Adkins, D.W.** and Calikoglu, A.S.: Delayed puberty due to isolated FSH deficiency in a male. Pediatric Research Suppl. 51: Abstract #690. page 118A, 2004
3. Zeger, M.P.D**., Adkins, D.W.,** White, K., Loechner, K.L.: Opsismodysplasia and Hypophosphatemic Rickets. Pediatric Research Suppl.-from PAS 2005
4. Kellee M. Miller[1], David M. Maahs[2]**, Deanna W. Adkins[3]**, Sureka Bollepalli[4], Larry A. Fox[5], Joanne M. Hathway[6], Andrea K. Steck[2], Roy W. Beck[1] and Maria J. Redondo[7] for the T1D Exchange Clinic Network; Twins Concordant for Type 1 Diabetes in the T1D Exchange -poster at ADA scientific sessions 6/2014
5. Laura Page, MD; Benjamin Mouser, MD; Kelly Mason, MD; Richard L. Auten, MD; **Deanna Adkins, MD** CHOLESTEROL SUPPLEMENTATION IN SMITH-LEMLI-OPITZ: A Case of Treatment During Neonatal Critical Illness; - poster 06/2014
6. Lydia Snyder**, MD, Deanna Adkins, MD,** Ali Calikoglu, MD; Celiac Disease and Type 1 Diabetes: Evening of Scholarship UNC Chapel Hill 3/2015 poster
7. **Deanna W. Adkins, MD,** Kristen Russell, LCSW, Dane Whicker, PhD, Nancy Zucker, Ph. D**:** Departments of Pediatrics and Psychiatry, Duke University Medical Center*;* Evaluation of Eating Disturbance and Body Image Disturbance in the Trans Youth Population; WPATH International Scientific Meeting June 2016; Amsterdam, The Netherlands

8. Rohit Tejwani**, Deanna Adkins,** Brian J. Young, Muhammad H. Alkazemi,Steven Wolf[3], John S. Wiener, J. Todd Purves, and Jonathan C. Routh; Contemporary Demographic and Treatment Patterns for Newborns Diagnosed with Disorders of Sex Development; Poster presentation at AUA meeting 2016
9. S.A. Johnson, **D.W. Adkins,** Case Report: The Co-diagnosis of Hypopituitarism with Klinefelter in a patient with short stature; Pediatric Academic Society Meeting 2018
10. Lapinski J, Dooley R, Russell K, Whicker D, Gray, B**, Adkins DW; Title:** Developing a Pediatric Gender Care Clinic at a Major Medical Setting in the South; Workshop Philadelphia Trans Wellness Conference 2018
11. Jessica Lapinski, DO, Deanna Adkins, MD, Tiffany Covas, MD, MPH, Kristen Russell, MSW, LCSW; An Interdisciplinary Approach to Full Spectrum Transgender Care; WPATH Conference Buenos Aires, Argentina, November 3, 2018
12. Leigh Spivey, MS, Nancy Zucker, PhD, Erik Severiede, B.S., Kristen Russell, LCSW, Deanna Adkins, MD; USPATH Washington, DC Sept. 2019. Platform presentation; "Psychological Distress Among Clinically Referred Transgender Adolescents: A latent Profile Analysis"

<u>Non-Refereed Publications</u>

i. Print
   i. Editorial Charlotte News and Observer-"**NC pediatric specialists say HB2 'flawed' and 'harmful,' call for repeal**"; April 18, 2016
   ii. Editorial News and Observer-HB2 May 2016 -"**Beverly Gray: Repeal HB2"** May 2016
ii. Digital
   i. Supporting and Caring for Transgender Children-HRC guide 2017
   ii. Initial endocrine workup and referral guidelines for primary care Providers-Pediatric Endocrine Society Education Committee Website Publication
   iii. Only Human Podcast August 2, 2016; https://www.wnycstudios.org/podcasts/onlyhuman/episodes/id-rather-have-living-son-dead-daughter
iii. Media and Community Interviews
   i. Greensboro News and Record Community Forum October 2017-*Transgender Panel Moderator*
   ii. Playmakers Repertory Company-Chapel Hill: *Draw the Circle* Transgender Community Panel 2017
   iii. Duke Alumni Magazine
   iv. Duke Stories
   v. DukeMed Alumni Magazine
   vi. NPR Podcast Only Human piece on caring for transgender youth and follow up piece 1 year later
   vii. ABC11, WRAL, WNCN News Coverage
   viii. News and Observer: Charlotte and Raleigh
   ix. Duke Chronicle and Daily Tarheel Article
   x. Huffington Post Article

xi. https://www.businessinsider.com/the-olympics-uses-testosterone-to-treat-trans-athletes-like-cheaters-2021-7
xii. https://www.wral.com/top-transgender-doctor-warns-teen-treatment-ban-could-be-deadly/19618762/
xiii. http://www.ncpolicywatch.com/2021/04/07/experts-bills-targeting-trans-people-get-the-science-wrong/

Published Scientific Reviews for Mass Distribution

Position and Background Papers

Other Publications

**Editorial Experience**

Editorial Boards
Ad Hoc scientific review journals
Hormone Research, Lancet, NC Medical journal, Journal of Pediatrics, Pediatrics, Transgender Health, International Journal of Pediatric Endocrinology, Journal of Adolescent Health

**Consultant Appointments**

North Carolina Newborn Screening Committee
Human Rights Campaign Transgender Youth Advisory Board

**Scholarly Societies**

**Professional Awards and Special Recognitions**

ESPE Fellows Summer School, 2001
NIH Loan Repayment Program Recipient
Lawson Wilkins AstraZeneca Research Fellow, 2003-2004
HEI 2017 Leaders in LGBTQ Healthcare Equality
Inside Out Durham Appreciation Award
Duke Health System Diversity and Inclusion Award January 2018
America's Top Doctor's 2020, 2021
Duke Health System Diversity and Inclusion Award January 2020- CDHD Course Team
Teaching for Equity Fellow 2021

**Organizations and Participation**

| Organization | Role | Dates |
|---|---|---|
| American Academy of Pediatrics | Member<br>Council on Information Technology<br>Member<br>Reviewer COCIT<br>Member Section on Endocrinology | 1998 to present<br><br><br><br>2004 to present |
| Pediatric Endocrine Society | Member<br>Member Education Committee<br>SIG member-Transgender, DSD, liaison to Advocacy SIG<br>Writer Web Publication for Pediatricians | 2000 to present |
| NC Pediatric Society | Member | 1998 to present |
| Endocrine Society | Member | 2000 to present |
| WPATH-International Transgender Society | Member | 2014 to present |

**External Support**

| Approximate Duration | PI | % Effort | Purpose | Amount Duration |
|---|---|---|---|---|
| Past | JAEB Center-Deanna Adkins | 0.5% | Type 1 diabetes research | $<br>5yr |
| | | | | |
| Past | Josiah Trent Foundation Grant-Deanna Adkins | 0.5% | Transgender and eating disorder research | $5000<br>3 yr |
| Pending: Submitted | NIH-Kate Whetten | 0.1% | Analysis of TransgenderHealth in Adolescents in Rural Africa, India, and Thailand | Consultant |

| Approximate Duration | PI | % Effort | Purpose | Amount Duration |
|---|---|---|---|---|
| Re-Submitting June 2022 | NIH R21 Deanna Adkins | 2% | Development of New Gender Dysphoria Measures in Youth | Co PI |
| ReSubmitting February 2022 | NIH R21 Sarah Legrand | 2% | Glow and Grow | consultant |
| Submitted November 2020 | CMS-Deanna Adkins and Rob Benjamin | 1% | Innovations Grant | Co PI<br>3 yrs |
| Gifts | Private Family | | Multiple including leadership training initiatives as well as other LGBTQ work | Approx. $18,000 Unlimited duration |

**Mentoring Activities**

| | |
|---|---|
| Faculty | |
| | |
| Fellows, Doctoral, Post docs | **Nancie MacIver-fellow** |
| | **Dorothee Newbern-fellow** |
| | **Krystal Irizarry-fellow** |
| | **Kelly Mason-fellow** |
| | **Laura Page-fellow** |
| | **Elizabeth Sandberg fellow UNC** |
| | **Dane Whicker-psychology post doc**<br>**Leigh Spivey-psychology post doc**<br>**Joey Honeycutt, Chaplain Intern**<br>**Kathryn Blew-research mentor** |
| Residents | **Yung-Ping Chin-mentor** |
| | **Kristen Moryan-mentor** |
| | **Jessica Lapinski-mentor** |
| | **Kathryn Blew-research mentor** |
| | **Matthew Pizzuto, Briana Scott-Coach, Laura Hampton Coach** |

| | |
|---|---|
| Medical students | **Tulsi Patel-continuity clinic mentor**<br>**Ernest Barrel-continuity clinic mentor**<br>**Sonali Biswas-research mentor 3rd year project**<br>**Katha Desai-research mentor 3rd year project** |
| Undergraduates<br><br><br><br><br>High School Students | **Erik Severeide-Duke University**<br>**Lindsay Carey-Dickinson College**<br>**Jeremy Gottleib-Duke University**<br>**Jay Zussman-Duke University**<br>**Aeryn Colton-Intern Apex High School** |
| Graduate Student MBS program | **Nicholas Hastings** |
| UNC Gillings School of Public Health MPH students | **Lauren Frey, Emily Dake, Alexandra Carle, Lindsay Woodcock, Hunter McGuire** |
| Nurse Practioners | **ECU, Duke-multiple** |
| DNP candidates<br><br><br>Pediatric Dental Fellow UNC | **Ethan Cicero-PhD committee member**<br>**Amanda Lund-PhD committee member**<br>**Joshua Raisin-research associate** |

**Education / Teaching Activities**
**Didactic classes**

High School

c. Cary Academy: Work Experience Program 2021

Undergraduate

1. Creating Excellence and Ambulatory Nursing 2008
2. Profile in Sexuality Research Series at Duke CGSD 2016
3. Duke School of Nursing BSN Course on Sexual and Gender Health guest lecturer: fall 2017, spring 2018, fall 2018, spring 2019, fall 2019, spring 2020, fall 2020, spring 2021, fall 2021
4. Duke School of Nursing Lecture on Transgender Care-recorded for reuse
5. Duke Physician Assistant Program guest lecturer; fall 2017, spring 2018
6. Duke Global Health Course guest lecturer fall 2016
7. Duke Neuroscience course on Gender and Sex guest lecturer fall 2016
8. Duke Ethics Interest group guest lecturer fall 2018, 2020
9. Duke EMS group lecture fall 2018
10. Duke Physician Assistant Program LGBTQ+ Rotation Educator 2019 to present
11. Global Health Sexual and Gender Minority Seminar Lecturer 2020

**UME:**

1. Cultural Determinants of Health and Health Disparities Course: Facilitator and developed one class; 2017-18 and 2018-19, 2019-20, 2020-21, 2021-22; Steering Committee member for course development
2. UNC School of Medicine Lecturer for LGBTQ Health series 2016-recorded for reuse
3. Duke Pediatrics Interest Group lecture Nov 2020
4. Duke Med Pediatrics Interest Group lecture fall 2018, 2020
5. Lecturer Body and Disease Course MS1 2019, 2020, 2021 Clinical Correlation Differences of Sex Development
6. Lecturer Body and Disease Course MS1 2020, 2021 Transgender Medicine
7. Lecture on Cancer in Transgender and Intersex Individuals April 14, 2021 Mount Sinai School of Medicine
8. Lecture on Transgender Medicine Univ. of Tenn. Health Science Center School of Medicine May 7,2021

**Graduate School Courses:**

1. Master of Biomedical Science Program-guest lecturer on Transgender Medicine fall 2016
2. School of Nursing Graduate Intensive Course Lecturer on Sexual and Gender Health; fall 2017, spring 2018, fall 2018, spring 2019, Fall 2019
3. Fuqua School of Business Med Pride Panel and presentation fall 2017
4. Master of Biomedical Science Program Mentor 2019-2020
5. Endocrinology for Nurse Practioners Duke Neonatal Nurse Practioner Program August 2021

**DUHS Employee Education**

1. Annual Duke Human Resources Lunch and Learn on Gender Diversity 2016, 2017, 2018
2. Over 100 lectures across the institution on gender including CHC front desk/nursing staff, hospital wide social work/case management, radiology, PDC clinic front desk/nursing staff
3. Steering Committee for Sexual and Gender Identity Epic Module development and Educational module development
4. DCRI Pride invited speaker
5. Duke Children's staff update 2021

**GME:**

1. Adult Endocrinology Fellows every year on growth and/or gender
2. Pediatric Residency Noon conferences on Growth and Gender-yearly
3. Reproductive Endocrinology Noon Conferences every 2 to 3 years
4. Psychiatry Noon Conferences periodically
5. Family Practice Noon Conference periodically
6. Pediatric Endocrine Fellow lectures twice a year or more

7. Pediatrics grand rounds: Vitamin D, Type 2 diabetes, Pubertal Development, Gender Diverse Youth
8. Duke Urology Grand Rounds 2016
9. Duke Ob/Gyn Grand Rounds 2017
10. Webinar for Arkansas Children's Hospital on transgender care 2018
11. Reproductive Challenges for Transgender people-Reproductive Endocrinology-2020
12. Metabolic Bone Disease in Neonates-NICU fellows 2019
13. Duke Psychiatry Grand Rounds 2017
14. Duke Pathology Grand Rounds fall 2020
15. Duke Family Medicine Community Rotation Educator 2019 to present
16. NC NAPNAP Symposium Keynote Speaker October 10, 2020
17. Duke Internal Medicine LEADS program speaker; Transgender Care 8/3/2021
18. Equity and Social Justice Webinar: Clinical Advocacy and Care of Transgender and Gender Diverse Youth October 27, 2021Harvard Equity and Social Justice Webinar

**Development of Courses Educational programs**

1. Pituitary Day October 2019-full day multispecialty seminar for caregivers of patients with hypopituitarism-Organized and developed the curriculum
2. Development of Gender Diversity Education for Health System education
3. Steering Committee for Cultural Determinants and Health Disparities Course
4. Helping to Adapt Resident Coaching Program to Pediatric Fellowships
5. Developed half day course for Duke Student Health on Care of the Gender Diverse Student with multiple disciplines included
6. Course Director: American Diabetes Association Camp Carolina Trails rotation for fellows and residents: 2009, 2011 – 2019
7. Medical Education for Camp Morris 2019, 2021

**Development of Assessment Tools and Methods**

1. Currently under development with Population Health Sciences-method to assess gender dysphoria; received Brief High Intensity Production (BHIP) grant for this collaboration; NIH grant Submitted March 2020; I am writing the portion of grant giving background on the population and the need for better measures.
2. Collaborating with the Duke Chaplain group to develop a spiritual assessment tool for gender diverse children and their families. Completed 2019

**Educational leadership roles**

1. Fellowship Program Director Pediatric Endocrinology 2008-2019
2. Course Director: American Diabetes Association Camp Carolina Trails rotation for fellows and residents: 2009, 2011 to 2019

**Educational Research**

1. Working with coaching program for residents modified and applied in pediatric fellows
2. Worked with the Council on Pediatric Subspecialties EPA study

**Invited Lectures and Presentations**

1. NC Peds Conference: Pubertal Development 2016
2. Trent Center for Ethics Lecture May 2017: Transgender Medicine: a Wealth of Ethical Issues
3. Visiting Professorship: ECU Brody School of Medicine Invited Professor October 2017
4. College of Diplomates-pediatric dentistry society-Webinar on transgender care 4/1/2020
5. NAPNAP keynote speaker Annual Meeting October 2020
6. Wake County Duke CME program: Type 2 diabetes treatments in pediatrics 2019
7. Lecture on Cancer in Transgender and Intersex Individuals April 14, 2021 Mount Sinai School of Medicine
8. Lecture on Transgender Medicine Univ. of Tenn. Health Science Center School of Medicine May 7,2021
9. Equity and Social Justice Webinar: Clinical Advocacy and Care of Transgender and Gender Diverse Youth October 27, 2021Harvard Equity and Social Justice Webinar

**International Meetings**

1. WPATH Amsterdam 2016
2. WPATH Buenos Aires 2018

**National Scientific Meetings (invited)**

1. Transgender SIG Developing a Patient Registry
2. Patient Advocacy for Transgender Youth Philadelphia 2018

**Instructional Courses, Workshops, Symposiums (National)**

1. Time to Thrive Arkansas Children's Hospital April 2018
2. National Transgender Health Summit UCSF Jan 2018: Providers as Advocates Workshop
3. Magic Foundation-Chicago, IL Annual Speaker on Precocious Puberty, Adrenal Insufficiency, and Growth Hormone at National Conference 2016, 2017, 2019, 2020, 2021
4. The Seminar-Fort Lauderdale, FL Invited Speaker on Care of Transgender Youth 2017

**Regional Presentations and Posters**

a. North Carolina Pediatric Society: Pubertal Development Presentation– Pinehurst, NC 2017
b. North Carolina Psychiatric Association: Caring for Transgender Children Presentation and Workshop on key concepts in care of transgender child-Asheville, NC 2017
c. ECU Campus Health Presentation Caring for Transgender Patients 2018
d. Radiology Technology Symposium Presentation on Caring for Transgender Patients 2018
e. Duke CME in Wake County-Update on Type 2 Diabetes Treatments Feb 2019
f. Hilton Head Pediatric CME Course-Update on Type 2 Diabetes, Short Stature, and Caring for Transgender Patients June 2019

g. Wake County Duke Pediatrics CME Type 2 diabetes treatments Feb 2019
h. NAPNAP Annual Meeting Keynote Speaker 2020
i. Sexual and Gender Minorities Research Symposium Duke Feb 2020; speaker and organizer

**Local Presentations**

1. Grand Rounds: 2016 to present-Duke Pediatrics twice, Moses Cones Pediatrics, ECU Ob/Gyn, Duke Ob/Gyn, Duke Psychiatry, Duke Urology, Duke Adult Endocrinology, Duke Pathology
2. Prior to 2016-Rex Grand rounds: Salt and Water balance, New treatments in Pediatric Diabetes, Adrenal Insufficiency, Duke peds grand rounds Bone Health, Type 2 Diabetes Mellitus
3. Duke Women's Weekend 2018 hosted by Duke Alumni Association
4. NCCAN Social Work Training 2016
5. NAPNAP lecture 2016 and 2018 and 2020
6. Profiles in Sexuality Research Presentation at Duke Center for Sexual and Gender Diversity 2017
7. Duke LGBTQ Alumni Weekend Presentation 2017
8. UNC Chapel Hill Campus Health Presentation 2018
9. Duke Student Health Presentation 2017, 2018, 2019 (workshop)

**Clinical Activity**

1. Duke Consultative Services of Raleigh-2.5 days per week in endocrinology and diabetes
2. Duke Child and Adolescent Gender Care Clinic 1.2 day per week at the CHC
3. Inpatient Consult Service Pediatric Endocrinology 1 week per month

<u>Administrative and Leadership Positions</u>

1. Medical Director Duke Children's and WakeMed Consultative Services of Raleigh
2. Director Duke Child and Adolescent Gender Care Clinic
3. Pediatric Endocrinology Fellowship Program Director 2008-2019

<u>Committees</u>

1. Graduate Medical Education Committee-2008-2019
2. School of Medicine Sexual and Gender Diversity Council 2015 to present
3. Pediatrics Clinical Practice Committee-2015? To present
4. Pediatric Diversity and Inclusion Committee

<u>Community</u>

1. Test proctor local schools
2. Guest lecture GSA multiple years
3. Diabetes Camp over 10 years
4. 100 Women who give a hoot
5. Collaborated to bring "Becoming Johanna" to Duke along with multiple screenings with the director and the lead actor
6. Teddy Bear Hospital volunteer both years